

Application No. 09/996,208
Amendment dated February 10, 2005
Reply to Office Action of November 26, 2004

REMARKS

Pursuant to the above-noted office action, claims 16 through 18 were objected to as being informal. Claims 8-10 and 16-18 were rejected under 35 U.S.C. 112, first paragraph as failing to comply with the enablement requirement. Claims 1-16 were rejected under 35 U.S.C. 103(a) given Alkhatib et al. (U.S. Patent No. 6,532,217) ("Alkhatib") in view of Schutte et al. (U.S. Patent No. 6,178,455) ("Schutte"). Claims 17 and 18 were rejected under 35 U.S.C. 103(a) given Alkhatib in view of Schutte and further in view of applicant's admitted prior art (AAPA). The applicant respectfully traverses these objections and rejections and requests reconsideration.

Claims 16 through 18 were objected to as being informal. In particular, the Examiner suggests that certain specified language can be advantageously removed. In the interests of expedited prosecution the applicant accedes to the Examiner's suggestion and hereby amends claims 16 through 18 in accordance with the Examiner's suggestion.

Claims 8-10 and 16-18 were rejected under 35 U.S.C. 112, first paragraph as failing to comply with the enablement requirement.

The applicant respectfully disagrees with the Examiner's assessment. Nevertheless, in the interests of moving forward, the applicant has removed the identified language¹ from claim 8. The applicant therefore respectfully submits that this rejection of claim 8 is traversed.

Claims 9, 10, and 18 were rejected as depending upon rejected claim 8. The rejection of these claims is therefore also resolved with the traversal of the rejection of claim 8.

As to claim 16, the Examiner contends that the language, "wherein an address prefix serves as a component of addresses on a communication link to allow endpoints and routers to generate new addresses for use on that communication link and wherein the router needs a new address prefix when no address prefix has been previously established for the

¹ "Wherein an active communication link can support communications but need not be coupled to an endpoint or another router when so identified."

identified active communication link” is not enabled by the specification. The applicant respectfully disagrees and avers instead that the specification is fully enabling to one of average skill in the art. To support this contention the applicant submits with this response an affidavit under 37 CFR 1.132 of one Narayanan Venkitaraman. That affidavit speaks for itself and, for the sake of brevity, the applicant will not repeat those comments here. This affidavit makes clear that the specification, read by one skilled in the art and having access to publicly available materials as identified in the specification, is enabling with respect to the language in question.

As to claim 17, the Examiner contends that the language, “where a router advertises a prefix on an identified active communication link by sending a message containing the prefix to all nodes present on the communication link” is not enabled by the specification. The applicant respectfully disagrees and avers instead that the specification is fully enabling to one of average skill in the art. To support this contention the applicant again refers to the affidavit of Narayanan Venkitaraman. Again, this affidavit speaks for itself and, for the sake of brevity, the applicant will not repeat those comments here. This affidavit makes clear that the specification, read by one skilled in the art and having access to publicly available materials as identified in the specification, is enabling with respect to the language in question.

As to claim 18, the Examiner contends that the language, “wherein a router supports an active communication link by advertising an address prefix on that communication link and by facilitating packet-forwarding activities between the communication links via the router” is not enabled by the specification. The applicant respectfully disagrees and avers instead that the specification is fully enabling to one of average skill in the art. To support this contention the applicant again refers to the affidavit of Narayanan Venkitaraman. Again, this affidavit speaks for itself and, for the sake of brevity, the applicant will not repeat those comments here. This affidavit makes clear that the specification, read by one skilled in the art and having access to publicly available materials as identified in the specification, is enabling with respect to the language in question.

The applicant therefore respectfully submits that the specification sufficiently enabling and is in suitable form and condition to support allowance of this application.

Claims 1-16 were rejected under 35 U.S.C. 103(a) given Alkhatib in view of Schutte. Alkhatib's teachings, however, do not deal with determining what interfaces are active. Instead, Alkhatib's approach *presumes* that the communication link is active and has an existing network prefix. Conforming to this presumption, an initial step (90) of Alkhatib's teachings "sends out a broadcast ICMP Echo Request."² Alkhatib's disclosure regarding determination of "the subnet number and the network number"³ corresponds to the applicant's "network prefix," and Alkhatib simply assumes that the network (70) already has an established network prefix at the time when his process operates and further that the devices (72 and 74) attached to that network already also have routable IP addresses.

The applicant's approach, however, facilitates operation in a contrary setting; i.e., when communication links *do not already have a prefix* at the time when the invention commences operation. In particular, the applicant's are addressing a situation when a communication link may have no network prefix of relevant scope and lacking said prefix the endpoints cannot compatibly interact through a new router. Alkhatib does not contemplate such a state and makes no accommodation for operation in the absence of an established globally routable network prefix for his communication link (70).

The main purpose of Alkhatib's approach is to allow his new device (76) to systematically determine the *already assigned* network prefix and subnet mask for the communication link (70) by systematically accumulating and comparing assigned network addresses of active nodes such as 72 and 74 and to use this information to help automatically construct a complete network address for the new device (76) by choosing a host number. If the network prefix had not already been assigned at the time of operation of Alkhatib's invention, then his devices (72 and 74) would have no established network addresses which Alkhatib's invention could employ in his steps 90, 92, 94, 96, and 98. In

² Alkhatib at column 7, line 1.

³ Alkhatib at column 7, lines 41-42.

such cases, with these fundamental steps impracticable, Alkhatib's invention would be inoperable.

Independent claim 1 specifically requires automatically identifying whether a router needs a *new* address prefix for an identified active communication link. As Alkhatib presumes the availability of a viable address, Alkhatib makes no teaching or suggestion regarding determining whether a given active link does, in fact, have such an address or otherwise need a new one. In fact, these teachings of Alkhatib are more rightly viewed as teaching away from the construct of the recitations of claim 1.

The applicant also notes that Alkhatib's device (76) would not be understood by one of ordinary skill in the art as comprising a "router." Claim 1 was previously amended to specify that the "router" of claim 1 must have at least two interfaces and that it must serve to connect multiple communication links to one another. The Examiner has cited Schutte, it appears, as teaching a router having a least two interfaces.⁴ Schutte's provision of a router, however, does not address the overall shortcomings of these references. A combination of Alkhatib with Schutte nevertheless still fails to meet the recitations of claim 1 specifically with regard to "identifying at least one active communication link" and with regard to "automatically identifying whether the router needs a new address prefix".

The applicant therefore respectfully submits that claim 1 may be passed to allowance.

Claims 2 through 7 are ultimately dependent upon claim 1, which claim has been shown allowable above. In addition, these claims introduce additional content that, particularly when viewed in context with the claim or claims from which they depend, constitutes additional incremental patentable subject matter. For all these reasons the applicant respectfully submits that these dependent claims are in suitable form to support allowance.

⁴ For the record, the applicant notes that innumerable examples may be found as such essentially simply conforms to the commonly understood definition and function of a "router" per se (though some special purpose routers, such as a Mobile IP Home Agent might have only a single interface).

With respect to independent claim 8, the Examiner relies upon a section of Alkhatib that describes “how IP packets are processed in a router.”⁵ When a router processes IP packets on a per-packet basis, however, then a decision to support the corresponding communication link *has already been undertaken*, as “support” clearly comprises processing packets and conditionally forwarding them. Possible confusion may relate to the timing and/or granularity of this decision. The applicant decides whether to support an “identified active communication link” as a whole, for all packets that might appear on that link, indefinitely. The cited section of Alkhatib implicitly but clearly refers to supporting the communication link by deciding whether and how to route individual packets arriving on that link. Thus, in Alkhatib, the support decision has already been undertaken at the time of application of the cited section. Furthermore, the cited section refers to “decisions” made on a packet-by-packet basis and not on a per communication link basis.

With this in mind, claim 8 clearly specifies assessing router links to provide identified active communication links and then, for each identified active communication link, automatically identifying whether the router needs to support the identified communication link. When support is required for the link, claim 8 then specifies automatically identifying whether the identified active communication link requires at least one network address prefix. In all these regards, both Alkhatib and Schutte are lacking and no combination of their constituent teachings, whether that combination be obvious or otherwise, will yield a corresponding approach.

The Examiner also makes the statement that Schutte “also does not require an active communication link to be coupled to an endpoint or other router” and bases this statement upon Schutte’s claim 1 and claim 3. A claim, of course, can comprise an enabling teaching in and of itself. The prior art impact of a patent claim, however, does not necessarily include the full ambit of its legal scope. Instead, only the enabling notions as are taught by the patent claim, in view of its corresponding specification, have prior art impact.

The fact that a patent claim does not require something is not the same thing as a direct teaching. As a simple illustration, there is nothing in Schutte’s claim 1 that requires

⁵ Alkhatib at column 4, lines 35-53.

providing electrical power to the indicated network elements. This lack of specificity in this regard, however, hardly constitutes a prior art teaching that a network can be operated without electrical power. In other words, while Schutte's claim 1 might be applicable to a non-electrically powered network that otherwise met the recitations of claim 1, his claim 1 is not credible enabling prior art with respect to an invention directed to a non-electrically powered network.

Therefore, with all due respect, the applicant submits that the Examiner's reliance upon Schutte's claims for an enabling reference or teaching is considerably misplaced.

Furthermore, and addressing now the specifically cited claim language, Schutte's claim 3 specifies that the first bidirectional link be a Point-to-Point Protocol (PPP) link that is established between his claim 1 router and a telephone modem. Schutte's claim 1, however, states that this router obtain "a set of logical addresses . . . from a logical address assignment agent . . . accessible via the first bidirectional link." This assignment agent, of course, is well understood by the skilled artisan as itself comprising an endpoint. Schutte's invention therefore requires an active communication link to be coupled to an endpoint in order to achieve the claimed result of obtaining a set of logical addresses from the assignment agent. Claim 3's inclusion of a modem and a PPP link into this path between the router and the agent does not mitigate this attendant requirement.

The Examiner also makes an argument that one skilled in the art would be motivated to combine the teachings of Alkhatib with Schutte in order to gain corresponding efficiency with respect to assigning addresses to hosts. Even a cursory consideration of that proposition, however, suggests otherwise, at least in part because these two references teach in such opposing directions to one another. Alkhatib essentially teaches that one guesses at an IP address based on a presumed network structure. Schutte essentially teaches explicitly fetching an address for a host from an authority using, for example, DHCP, without any guessing whatsoever.

"Efficiency" relates to many factors and variables. There is nothing in either reference to suggest that either approach is unduly inefficient nor has the Examiner cited any other source that serves as a recognition or expression of such a thought. Furthermore,

there is nothing to suggest that, in fact, a combination such as is suggested by the Examiner would, in fact, be more “efficient” than either invention left alone. The applicant respectfully submits that a skilled practitioner would more likely conclude that a piecemeal combination of these two references would yield, at best, a less efficient approach than either approach left alone.

The applicant therefore respectfully submits that claim 8 is sufficiently distinct with respect to these prior art references as to support its allowance.

There are some other points raised by the Examiner that should also be addressed. With respect to claims 4 and 14, in particular, confusion seems to arise with respect to the difference between “advertising” on the one hand and “soliciting” on the other. Alkhatib teaches the solicitation of active nodes. In particular, the Examiner states, “In step 90, device 76 solicits active nodes on the subnet. That is, device 76 will send a message to all of the devices asking the devices to send their IP addresses to device 76.”⁶ Consequently, and ignoring for the moment that Alkhatib’s device 76 is not, in fact, a router at all, his device is not “advertising.” That is, this device 76 is not providing information to other hosts. Instead, it is requesting information from other hosts.

The Examiner points in particular to column 12 of Alkhatib which appears to relate to Alkhatib’s use of DNS. Alkhatib uses DNS to facilitate his guessing processes and also to establish the mapping between a guessed IP address and a name.⁷ These teachings, however, have nothing to do with advertising in general and more specifically have nothing to do with advertising a new prefix for use by link endpoints. Indeed, the only thing output by Alkhatib’s device 76 to the DNS server is its own DNS information and not general information on address prefixes to be sent to other hosts. In short, this DNS server is not advertising prefixes.

Those skilled in the art will well recognize this obvious point of distinction. For example, “advertising” is used pointedly in the referenced RFC2462 document, in section 1 thereof, wherein it states that, “Routers advertise prefixes that identify the subnet(s)

⁶ Alkhatib at column 5, lines 52-55.

⁷ Alkhatib also teaches, of course, simply blindly searching for a DNS server on a network.

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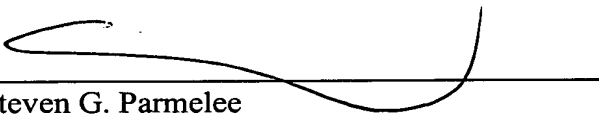
associated with a link” and in section 5.5.1 which states, “Router Advertisements are sent periodically to the all-nodes multicast address.” Thus, those skilled in the art will recognize and understand there to be a clear distinction between Alkhatib’s solicitations that are requests for information and the applicant’s advertisements that are well understood to comprise the giving of information (and particularly the giving of prefix information) to hosts on a communication link.

The Examiner also makes note of Alkhatib’s use of Address Resolution Protocol (ARP). As used in Alkhatib, however, ARP transports queries and responses in order to acquire the mapping between an IP address and a MAC address. ARP does not, and is not, advertising nor is it otherwise explicitly transporting IP address prefixes. Therefore, even if one were to construe an ARP response as comprising an advertisement, it is nevertheless not an advertisement that advertises a prefix.

The remaining claims are all similarly distinguished from the prior art references of record on the basis of one or more of the points already raised above, which points will not be repeated here for the sake of brevity.

The applicant respectfully submits that claims 1 through 18 may be passed to allowance.

Respectfully submitted,

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